



TALLINN UNIVERSITY OF
TECHNOLOGY



WHAT ARE WE DEFENDING

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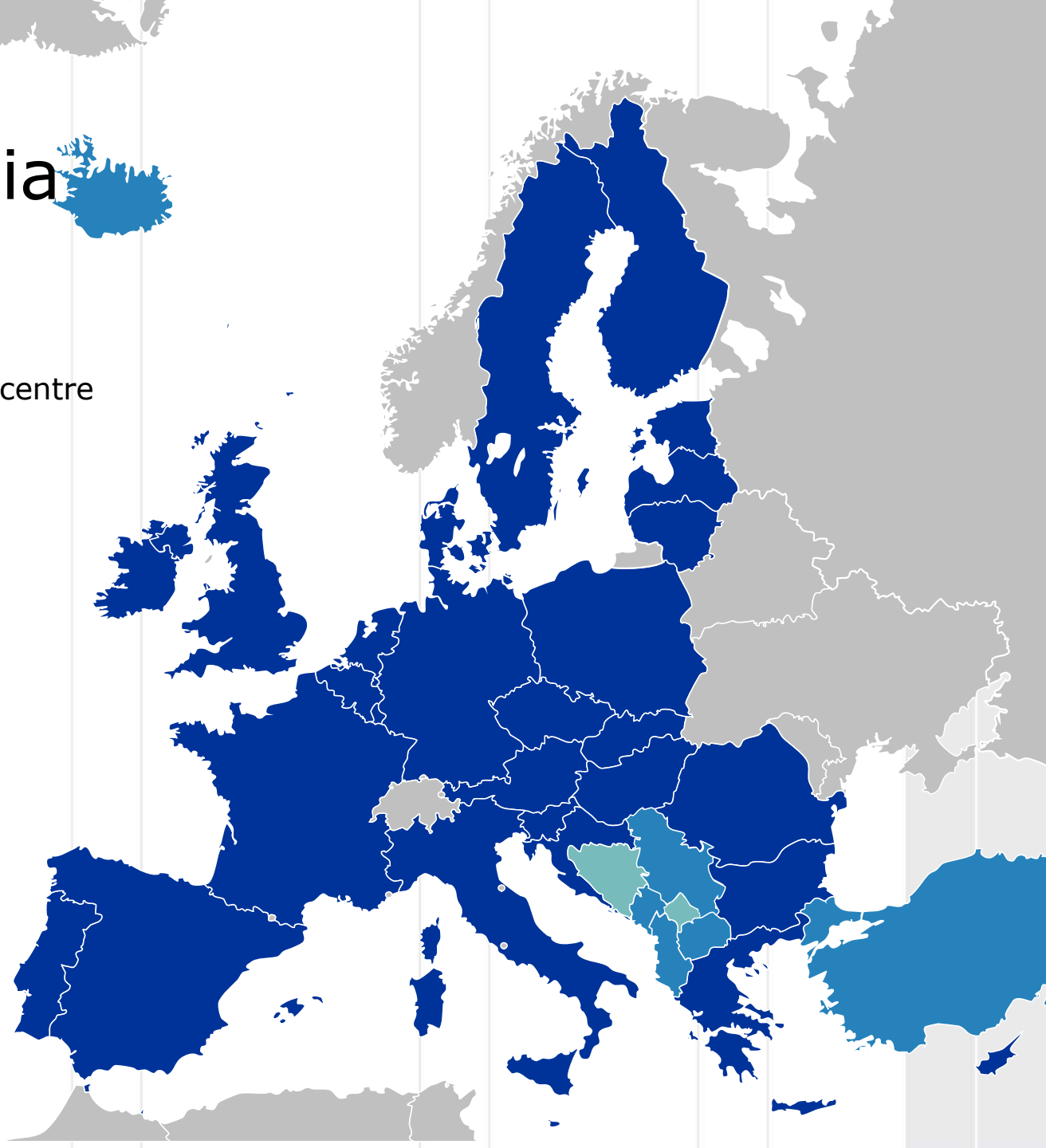
Topics

1. History of cyber cooperation in Estonia
2. What we defend?
3. Government's role
4. What is different
5. The future of SCADA
6. CIA



Estonia

Far from EU centre





Historical milestones

Institute of Cybernetics

1998 – Cooperation of banks

2000 - Digital Signature Law

2003 – Cybercrime Industry

2005 - E-voting

2006 - CERT-EE

2007 - "Bronze riots"

2008 - NATO CCDCOE

2008 - National Cyber-Security Strategy

2009 - Cyber Defence subunits

2011 - Cyber Defence Unit

2012 – Cabinet level exercise

2014 – New Strategy



Protecting our way of life

Cyber Defense League brings the volunteers together under three pillars:

Knowledge and skills

Cooperation and network

Principles and values



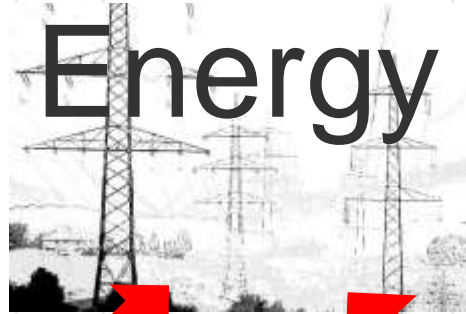
Defending an e-way of life

E-stonia – ecosystem

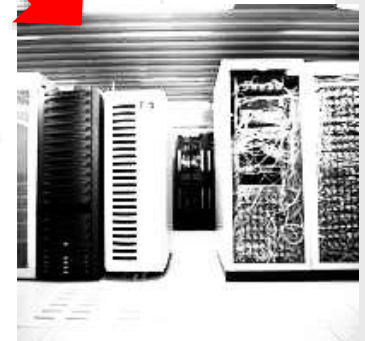
E-solutions widely in use and dependable

- 99% of banking
- 96% tax declarations
- M-parking
- National ID cards issued
- Sign and encrypt documents using E-ID
- E- & M-voting
- National Electronic Health Records
- Public transport ID-ticket, ID-fishing licenses etc etc

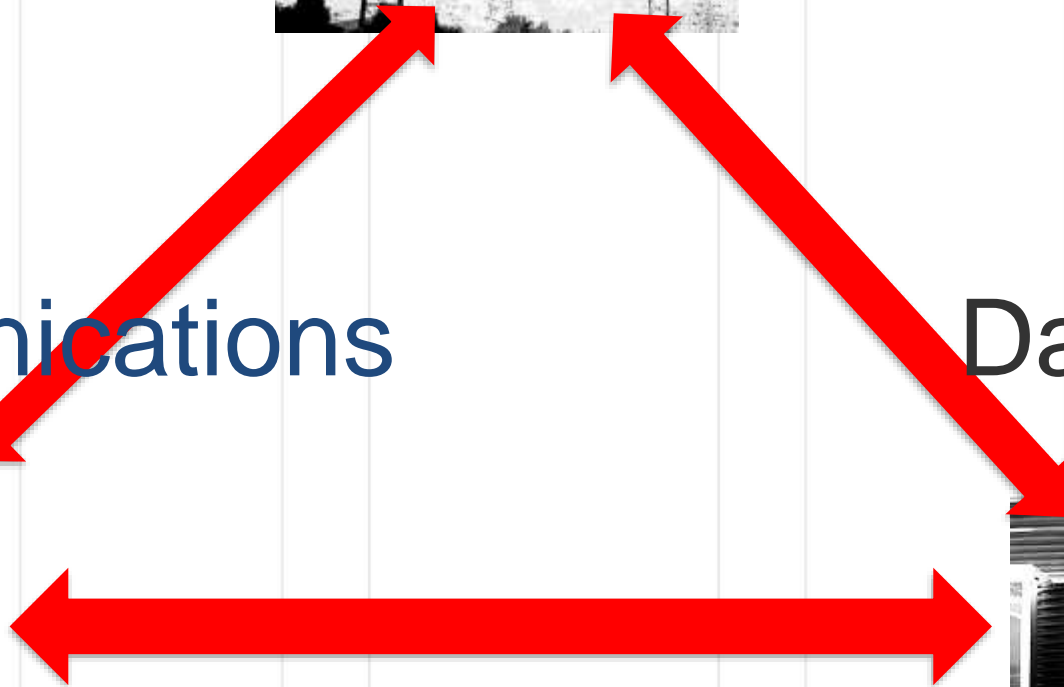
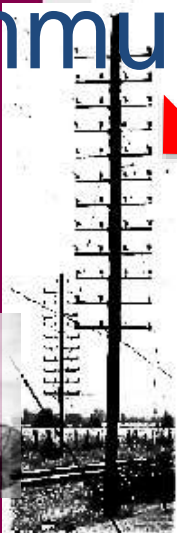
Triangle of Critical Infrastructure



Data



Communications





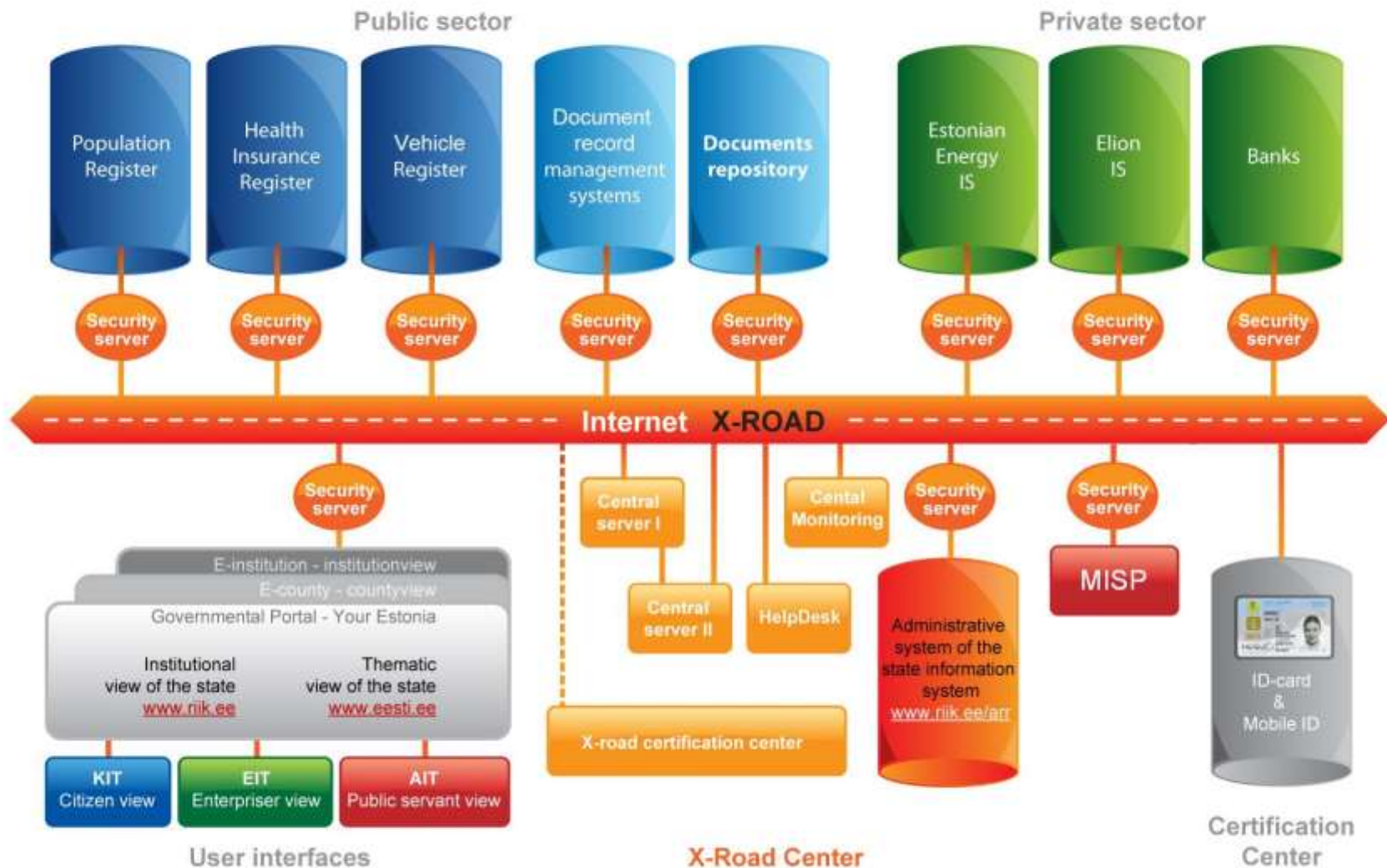
Dependability

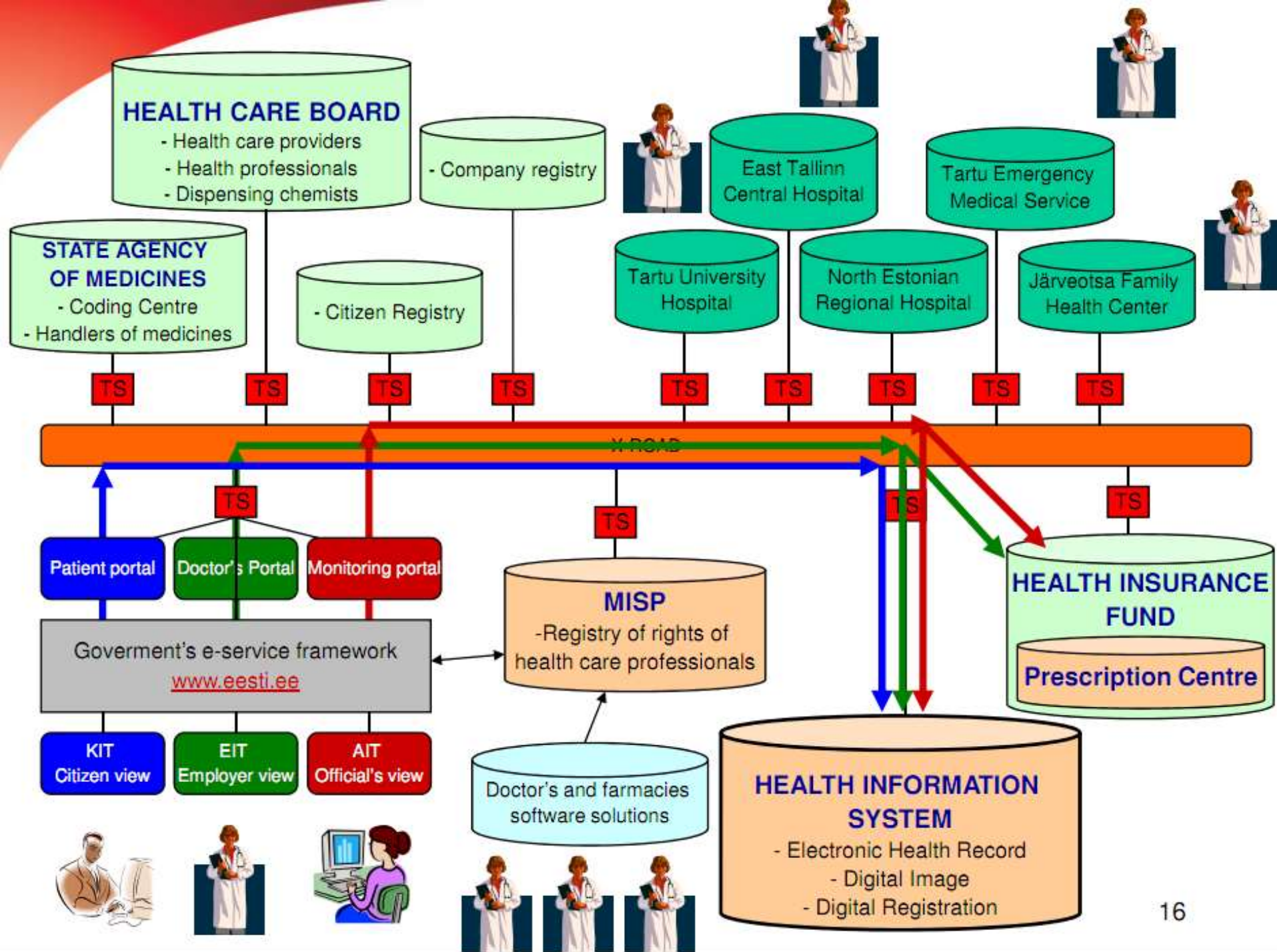
95% depending

30% critical

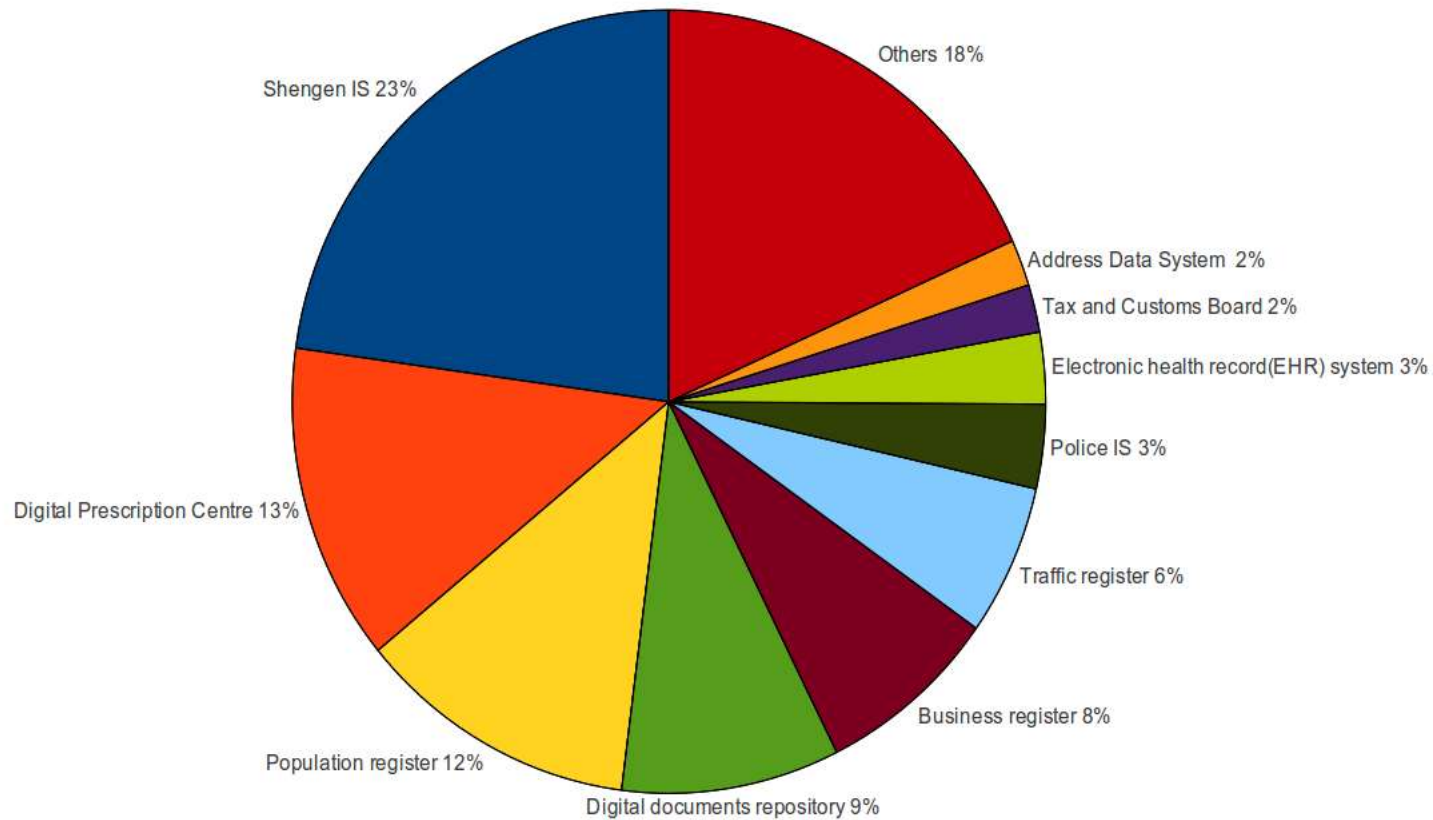
10% no low tech backup

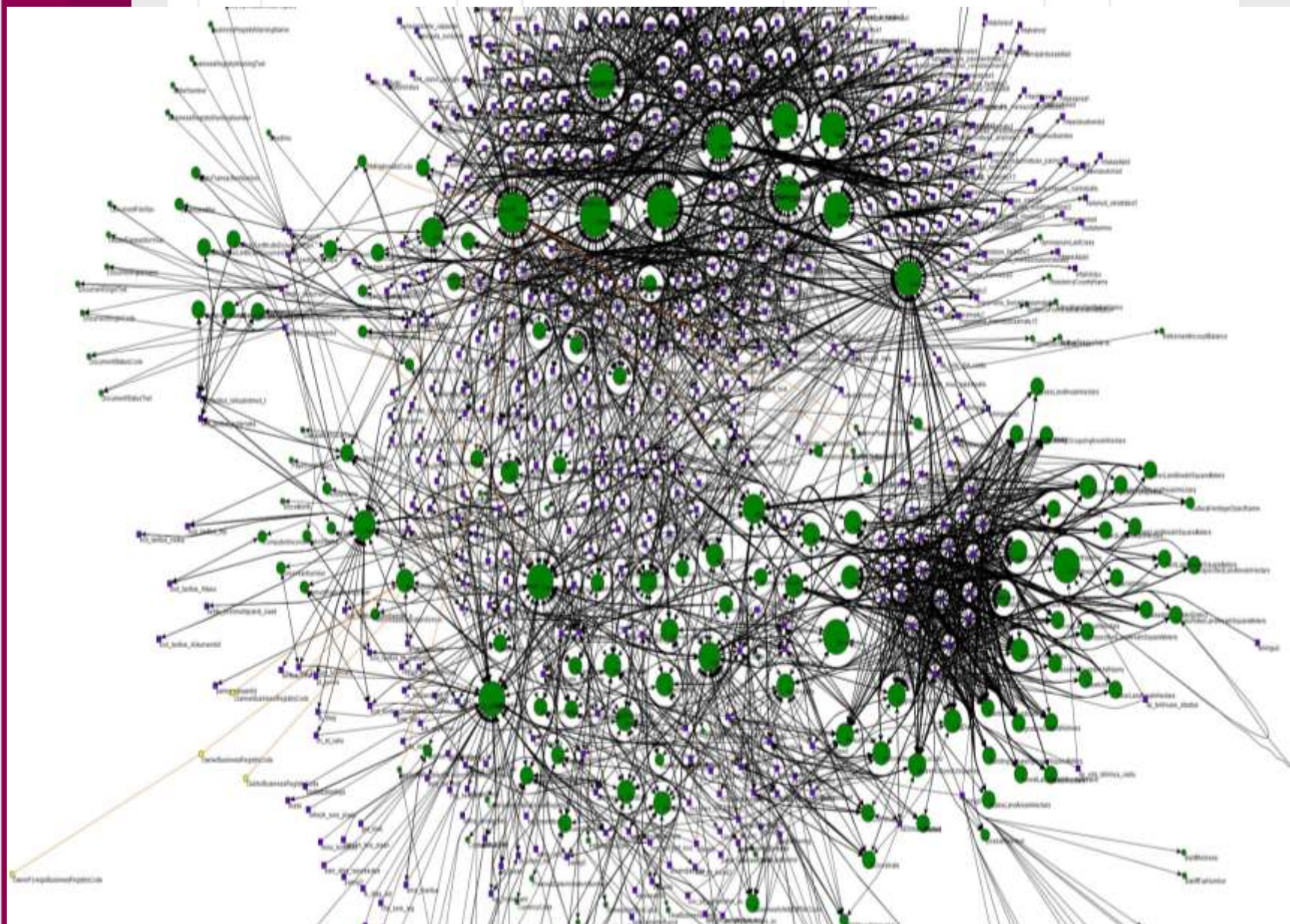
Estonian information system





Service transactions in X-Road by providers







Legislation

National Cyber Security Strategy of 2008

- Creation of a cabinet-level **National Cyber Security Council**
- Restructuring of the **Estonian Informatics Centre** for critical civilian information infrastructure protection and monitoring the country's cyber space

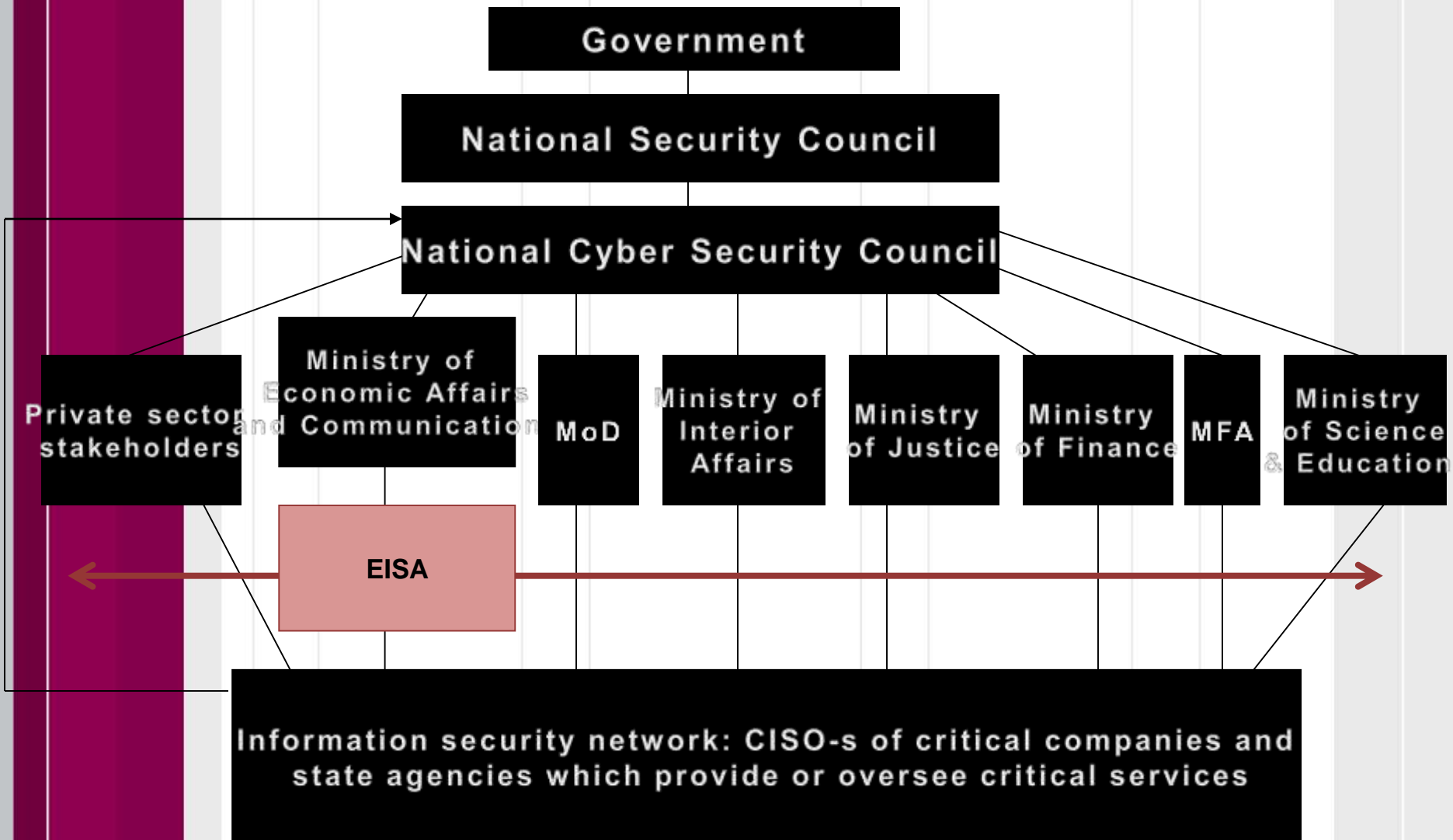
Emergency Act of 2009

- Cyber attacks can constitute a national emergency
- Re-definition of critical services and coordinating agencies in light of lessons learned
- Compulsory baseline IT security standards for the public sector
- Creation of the Cyber Defence League

National Cyber Security Strategy of 2014 – protecting Trust

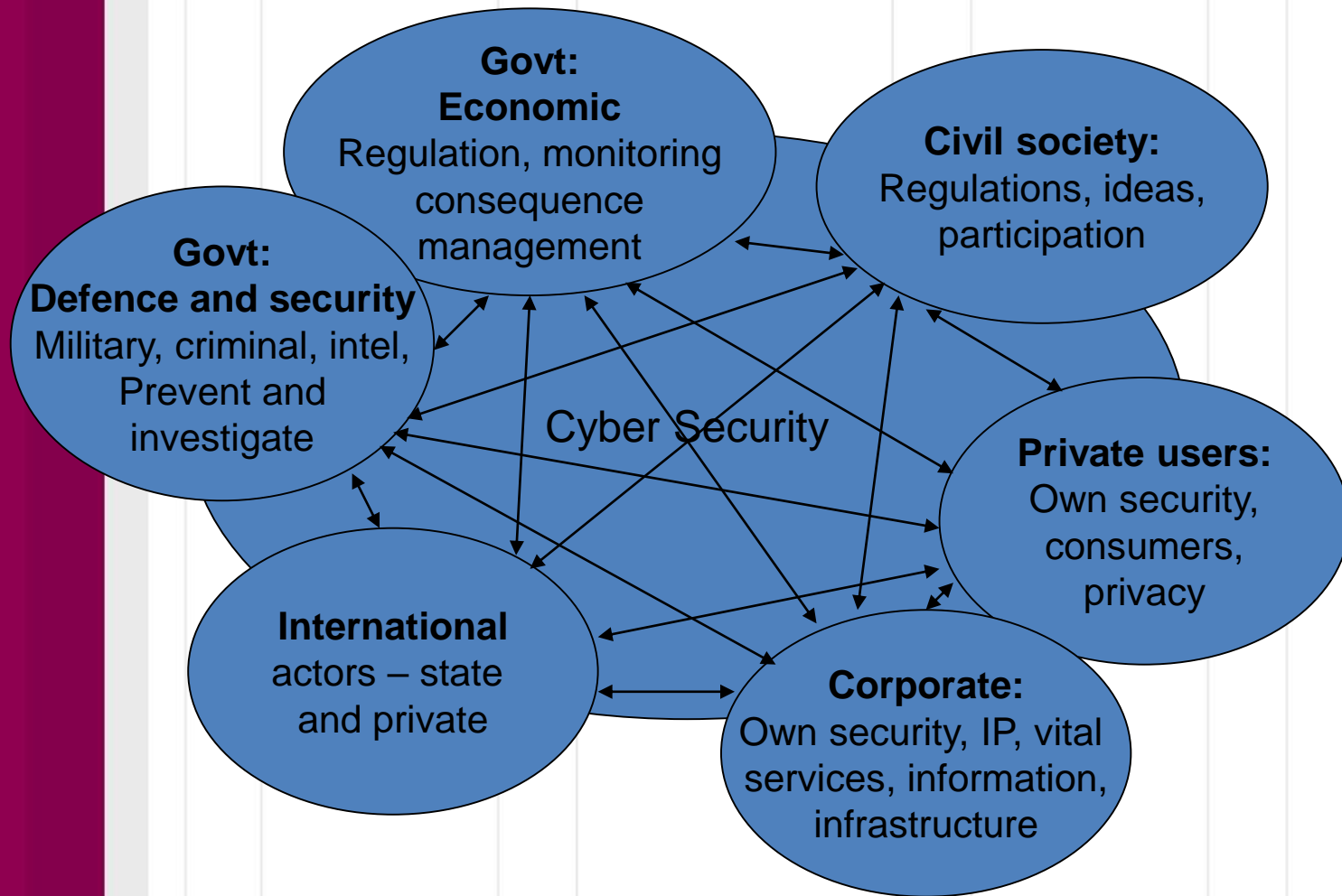


National organization





Many responsibilities





Not just government

Banks, major telecoms, etc

- Maintain services for the state and users
- Coordinate with the government, each other

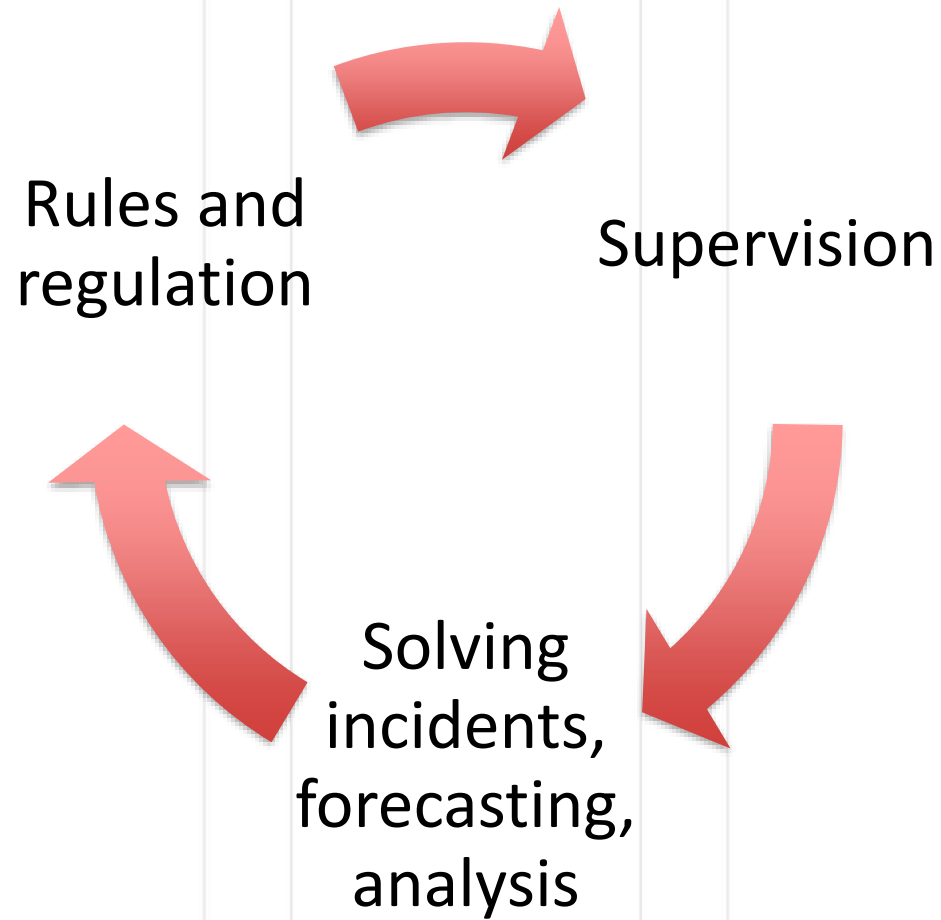
Individual citizens, awareness and education

- Graduate programs in information security and cyber defence
- IS modules in BA programs, training for specialists
- Increased funding for IS research
- Primary and secondary education include computer safety classes in curricula



Important actors

- Ministries: MEcon, MoD, MoI, MFA, MoJ
- EISA (incl CERT.ee)
- Other state IT agencies: SMIT, RIK
- Police, Security police, Prosecutor/Judiciary
- EDF, Cyber Defence League
- E-governance Academy
- Think tanks: ICDS, EIHR, Praxis
- ICT export cluster, individual companies (Cybernetica, SK, Webmedia)





NATO CCD CoE

- 20 nations
- 3 focuses
 - Legal and Policy
 - Technical
 - Concepts and Strat
- Conference
- Training courses

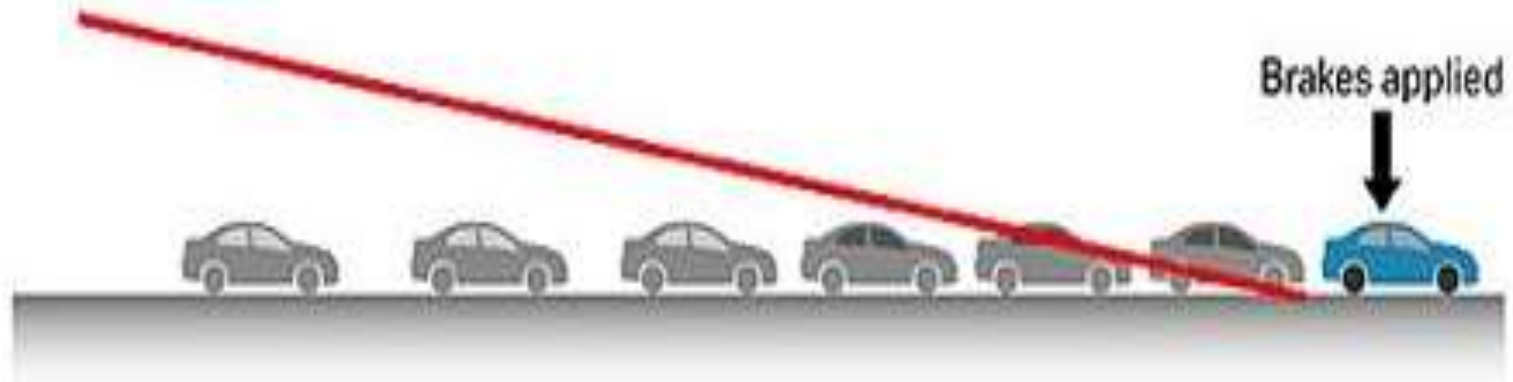


CCDCOE

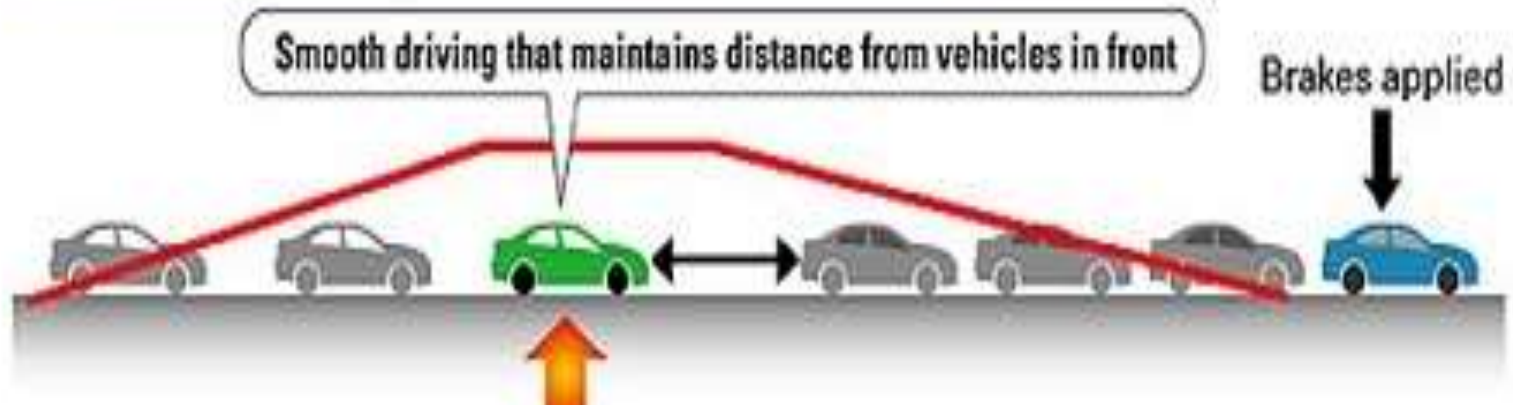
Cooperative Cyber Defence
Centre of Excellence
Tallinn, Estonia



Smart transport



When congestion minimizer system is used





Smart business models

- School
- Healthcare
- Home
- Energy
- War



Data Formats

- Security linear
- Market exponential

If automation is an answer, then

- We need agreed formats



CIA

Confidentiality is getting more expensive

Integrity is scaling (Merkle trees)

Lawyers are educated in confidentiality

